AN OPERATION

WITH A

DOUBLE NEEDLE OR BIDENT,

FOR THE

REMOVAL OF A CRYSTALLINE LENS

DISLOCATED INTO THE VITREOUS CHAMBER.

BY

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AN OPERATION WITH A DOUBLE NEEDLE, OR BIDENT, FOR THE REMOVAL OF A CRYSTALLINE LENS DISLOCATED INTO THE VITREOUS CHAMBER.

To remove a dislocated lens from the anterior chamber of the eye is difficult, and to remove one from the vitreous chamber and save the integrity of the organ is perilous, and more difficult than any other operation in ophthalmic surgery. Excellent authorities therefore agree in recommending, in many cases, the practice of enucleation rather than to incur the immediate and later risks of attempted removal of dislocated crystalline lenses.

In numerous cases of dislocated lens the aqueous and vitreous humors are altered in their physical condition, being commingled or degenerated. When that is so, the instant that an opening is made for introducing a scoop, or other instrument, to extract the misplaced and mobile lens, there is a quick loss of the fluid contents of the eye. The eye wall falls in, the cornea crumples, and the lens eluding the instrument used for its removal, sinks into the vitreous chamber. If detachment of the retina or choroid with hemorrhage does not immediately occur, great

violence is done by the operator in prodding after the lens. If the lens be finally extracted, secondary consequences occur, which cause the wounded eye to be very irritable and prone to become the focus of sympathetic trouble for the fellow eye. To avoid so direful a sequel, cautious operators have preferred to enucleate the eyeball in which there is a misplaced lens, instead of attempting to extract. This conclusion, reached by so many, has no doubt been furthered by the difficulties attending the fixation and subsequent extraction of the dislocated lens with the least loss of the fluid contents of the eye, and with the least traumatism.

Having had many cases of dislocated lens in the thirty years of my public and private work, I had come to look upon them as very embarrassing. I had also had occasion to know from actual trial, and with a fair amount of dexterity, the difficulties attending all the proposed methods for the removal of the offending body. Considering the alternative of enucleation, I could not help remembering that, easy as the mechanical part of that procedure is for the merest tyro in ophthalmic surgery, it is not without grave drawbacks for its subjects. A quiet, sightless eyeball, unless so enlarged as to be monstrous and a conspicuous deformity, is far better than the best fitting artificial eye. Furthermore, the history of the sockets left by entire enucleation is not, by any means, one of unbroken satisfaction. Enucleation is always a serious mutilation, and, like an amputation, should never be done if any other less radical procedure is practicable and prudent. I cautiously dissent from the doctrine, that, inasmuch as danger to a fellow eye

may possibly occur at a more or less remote epoch in cases supposed to resemble those in which sympathetic trouble has been known to happen, therefore, we should always enucleate in a case in which sympathetic disease *may* possibly result. A considerable, and probably an increasing, number of cases in which sympathetic disease is not present, may be safely treated upon the expectant plan, or by surgical procedures in which less than the entire eyeball is sacrificed.

Believing that the impossibility of removing dislocated lenses, in some cases, without inflicting upon the eye destructive violence, had induced surgeons to resort to enucleation, it occurred to me to attempt so to modify the existing methods as to lessen what seemed to me to be the greatest difficulty, namely, to secure fixation of the lens in an accessible place, till a corneal wound had been made sufficient for its removal; and, in addition, to use the lens by means of the instrument of fixation, so as to plug the pupil more or less closely and retard the efflux of the fluids of the eye to as late a moment as possible in the manœuvre. If this is attempted by the use of a single needle, it may not be possible to raise the lens, if it be submerged in the vitreous humor. If it be raised, it may not be possible to prevent its falling over the needle and becoming again submerged, thus provoking the operator to dip his instrument again and again in the depths of the eye, to the injury of the tissues through which it penetrates or is swept. If the single needle is so used as to lift the lens and hold it near enough to the anterior chamber to be easily accessible after corneal section, its handle must

be intrusted to an assistant, and thus it happens that two operators are acting in some of the steps of the operation without the indispensable benefit of accurate and unfailing coöperation. It is much better in those surgical manœuvres in which the quality of the result must depend greatly upon the harmony of consecutive steps that one will should be in control. This rule holds, however skilful and accordant the assistant may be.

Influenced, then, by the two foregoing considerations, among others, I devised the double needle, or bident, which is shown in the illustrations which accompany the narrative of the following case:

I. M., æt. 27, has been blind in his right eye from earliest infancy. The form and general appearance of the exterior of the organ are normal. Its iris is tremulous, the pupil contractile, and somewhat more dilated than that of the fellow eye. Its crystalline lens is of full size, or nearly so, opaque and mottled, as from beginning calcific degeneration. The lens is also so loose that it moves to and fro with a quick, volatile motion, though suspended, on the temporal side, by a narrow, hinge-like attachment of the suspensory ligament. When the patient throws his head back the lens is snatched out of the direct view of the observer, but may be seen by oblique inspection in the temporo-ciliary region. The eye is sometimes irritable, but seldom, if ever, reddened, and there is constantly present a sense of something in motion in the eye.

The patient is painfully conscious of the startling deformity which the perpetual appearance and disappearance of the white lens in a dark pupil produces

on every motion of the eye and head. For some time the fellow eye has also engaged his attention, partly because its endurance seemed to be lessened, and partly because apprehension has arisen lest sympathetic disease might make an insidious invasion. Although, for many years intolerant of the idea of any operative interference, he has at last become convinced that he cannot much longer endure the irksomeness of his condition, and the dangers which threaten the faulty organ. The vision of his well eye is $\frac{20}{15}$, that of the fellow eye = 0.

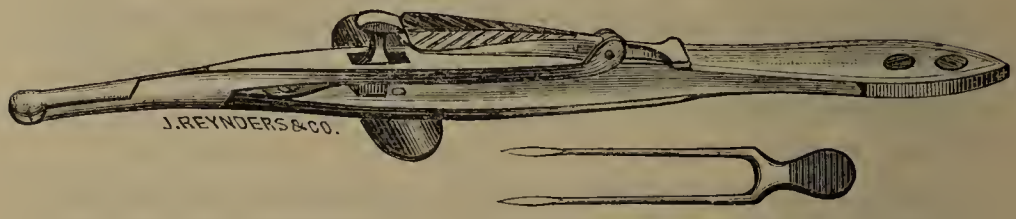
Several surgeons had examined the case, and more recently, at my suggestion, he sought the advice of a most eminent colleague in New York. The latter advised that the troublesome eye should be enucleated, instead of any attempt being made to remove the dislocated lens. In this the patient would not acquiesce. He therefore went to his home, in a distant city, but almost immediately returned again to New York, as the eye seemed to be worse, and sympathy in its fellow more noticeable.

After explaining that my attempts to remove the lens might fail, and that it might be expedient, during the course of such an operation, to resort to immediate enucleation, the patient left the matter entirely in my hands.

Believing that the ordinary methods for the removal of a lens dislocated into the vitreous humor would fail, I devised the procedure which is now offered for consideration. I dilated the pupil with atropia, but could not produce as wide dilatation as might have been expected in a normal eye. I then placed the patient on his back in charge of the fol-

lowing medical colleagues: Drs. Webster, Coleman, Beard, and Ring, requesting them to keep his head as immovable as possible, to avoid the complete detachment of the lens. We then gave ether as thoroughly as possible. Observing that the eye retained some sensibility even after the breathing of the patient had become stertorous, and wishing to have analgesia of the organ, we instilled a few drops of four per cent. solution of hydrochlorate of cocaine upon the conjunctival surface. I next opened the eyelids with a Gräfe's speculum, and fixed the eye by grasping the tissues between the insertion of the inferior rectus and the margin of the cornea with ordinary fixation forceps. Looking in through the pupil we could just discern the dislocated lens lying far to the temporal side of the vitreous chamber in the ciliary region. I now brought into use the little appliance with which we hoped to facilitate the removal of the lens. The instrument, with its handle, a Sands's needle-holder, is delineated in the first illustration.

FIG. 1.



It consists of two ordinary, fine, straight, delicately pointed, cataract needles, about six-eighths of an inch long, fixed parallel at a distance a little less than an eighth of an inch apart. These needles are united at their proximal ends by a projection which

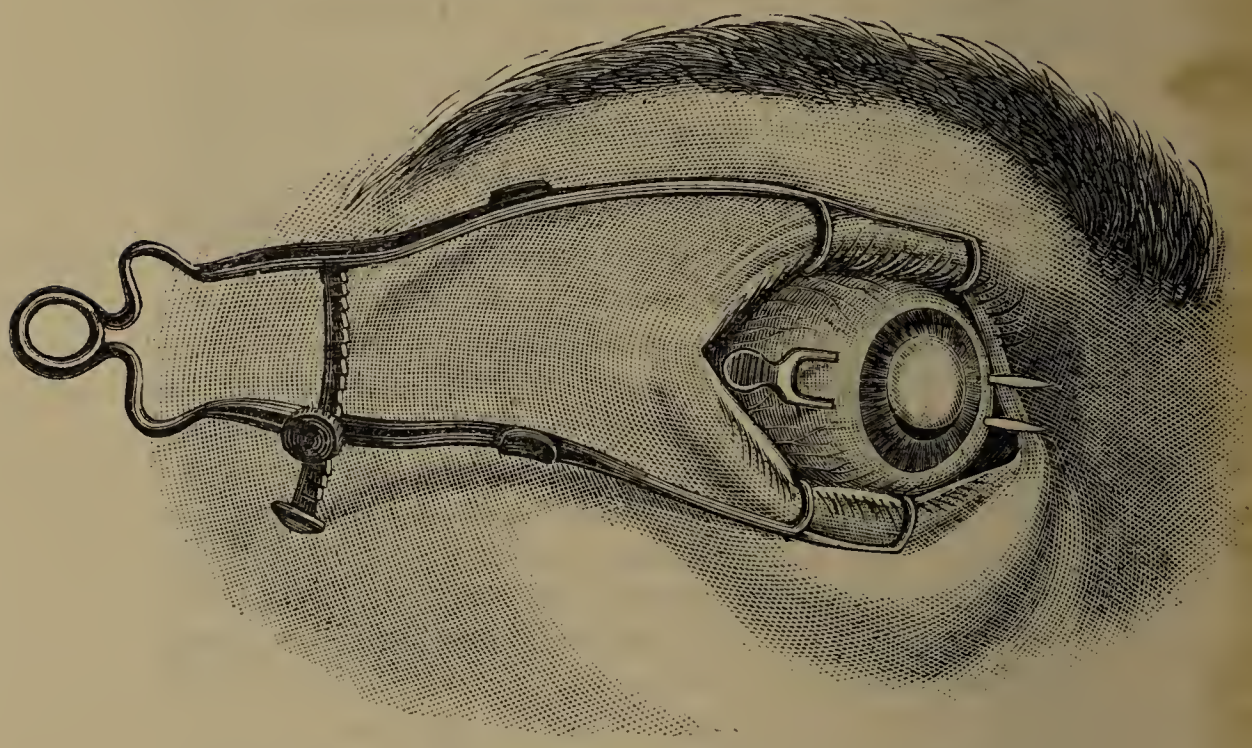
is flat, and otherwise so shaped and roughened as to be adapted to the grasp of the beak of a holder, such as that known in the shops as Sands's needle-holder. Although averse to laying any claim whatever as an inventor of new instruments, I may, perhaps, venture to call the needles a bident.

Having mounted the bident in the holder with the thumb catch of the latter uppermost, and having the eyeball firmly fixed as previously stated, I penetrated the temporal aspect of the eyeball at a point just far enough back to enter the vitreous chamber without wounding the iris, or touching the dislocated lens, till the bident had penetrated the vitreous humor to a point a little to the temporal side of its centre. I then, by depressing the handle of the holder, caused the points of the bident to describe an arc forwards. I was greatly pleased to see the lens caught on the bident—as a pea might be lifted on a two-tine fork, and brought forward through the pupil into the anterior chamber. I then pushed the bident on and caused its points to emerge on the nasal side of the eyeball close behind, but avoiding the iris.

The neat completion of the wound of exit was insured by placing the end of the forefinger of my left hand upon the surface of the eyeball at the point to which I was directing the bident. In this manner the scleral conjunctiva being pressed upon the points of the bident they were passed so quickly through the subconjunctival space after penetrating the sclerotic as not to let any fluid flow into and distend the subconjunctival connective tissue. The holder was then detached from the bident, and the lens remained free

upon its prongs and pressed against the cornea, as shown in the second illustration.

FIG. 2.



With a narrow Gräfe's knife I then made a sufficient wound in a downward direction in the cornea, and easily completed the delivery of the lens with a delicate wire or skeleton spoon. Under similar circumstances I might probably deliver the lens by a partial withdrawal of the bident and dispense with the use of the spoon.

I then removed the bident with the holder. Although this was done without difficulty, I would prefer, under similar circumstances, to do it with

my thumb and forefinger, as being quite easy, and thus avoiding the necessity of applying the holder a second time. Not applying the holder would cut off one movement from the manœuvre. There was scarcely any appreciable escape of fluid, as the lens seemed to plug the pupil, and on its delivery the bident was instantly removed. The corneal wound fell into neat coaptation, and there was no prolapse of iris.

I then closed both eyes, greased the surface of the eyelids with white vaseline, applied light compresses of absorbent cotton, a thin flannel bandage, and over all a black silk mask. The patient was placed in bed on his back, and much motion and all forms of excitement forbidden.

For two days the dressings were not removed. At the end of that time they were removed, the entire surface of the eyelids washed with warm solution of hydrarg. bichloride, one to two thousand, and some of the same solution allowed to penetrate the palpebral slit. As the eye was somewhat painful and reddened, a drop or two of a two per cent. solution of sulphate of atropia and of a four per cent. solution of hydrochlorate of cocaine was also instilled, and the dressings reapplied. Such was the course pursued.

The recovery was continuous and uneventful. The operation was done November 13, 1884, and the cure was complete December 1, 1884. The pupil remained responsive to light. It had become a little drawn in the direction of the corneal wound, though contractile and not adherent.

As the eye had been quite blind from infancy, no

vision was expected after the operation. Subsequent ophthalmoscopic examination revealed extensive plaques of old choroidal and retinal atrophy, with complete atrophy of the optic nerve, lesions antecedent to or soon following birth.

January, 1885.—Patient has been again under observation for an affection of the ear. The eye is well, and the result in every way satisfactory to the patient, to my friend, Dr. Webster, and to myself.

It may be said that the lens might have been removed by using a large spoon through a section of the cornea with or without iridectomy. That with other methods was considered and dismissed as impracticable. I had had the case under observation for more than seven years, and studied it in the light of every known surgical procedure. I do not think I could have met the indications with any of the methods previously in use.

That the method is applicable to all cases of dislocated lens, especially those in which the lens is in the anterior chamber, I do not claim. It is even possible that it may be relegated, after further trial, to the list of the curiosities of ophthalmic surgery. The method of inserting a single needle, or a bident, by means of a detachable needle-holder, may prove of value in certain cases of foreign body in the chambers of the eye. I recall cases of other foreign bodies than dislocated lenses, in which I would have got valuable aid from it.